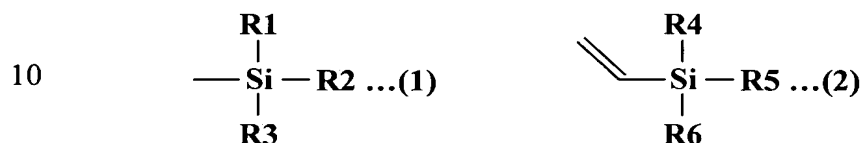


ABSTRACT OF THE DISCLOSURE

A proton conduction material having high proton conductivity and exhibiting high reactive gas permeability regardless of the percentage of water content is provided.

- 5 This proton conduction material consists of a polymer material whose molecular structure has a strong acid functional group. This polymer material consists of a polymer of a mixture of a monomer having an end structure expressed by a formula (1) or a vinyl radical and a monomer expressed by a formula (2).



- A strong acid functional group is included in the structure of both the monomers. It is to be noted herein that R1, R2, R3, R4, R5 and R6 represent a hydrocarbon radical, a fluoro-substituted hydrocarbon radical, or a trimethylsiloxy radical.
- 15 Because introduction of a structure in which a hydrocarbon radical is bonded to silicon weakens interaction and causes bulkiness, gaps are created among atoms. If the number of the gaps among the atoms increases, the diffusion coefficient of reactive gases increases. As a result, permeability of the reactive gases can be enhanced.